



PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference Auto Behave Mod	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/GB2004/002477	International filing date (day/month/year) 10.06.2004	Priority date (day/month/year) 10.06.2003	
International Patent Classification (IPC) or national classification and IPC H04M1/725			
Applicant SYMBIAN SOFTWARE LIMITED et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p style="margin-left: 20px;">a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 7 sheets, as follows:</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 11.04.2005	Date of completion of this report 25.05.2005		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer de Biolley, L Telephone No. +31 70 340-3137 		

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**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/GB2004/002477

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1, 2, 7-9	as originally filed
3-6	received on 14.04.2005 with letter of 11.04.2005

Claims, Numbers

1-13	received on 14.04.2005 with letter of 11.04.2005
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☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☒ the claims, Nos. 14-15
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-13
	No: Claims	
Inventive step (IS)	Yes: Claims	1-13
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

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**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
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International application No.

PCT/GB2004/002477

Reference is made to the following documents :

- D1: US-B1-6 418 309 (BARATT MANON ET AL) 9 July 2002 (2002-07-09)
D2: US-B1-6 457 132 (BORGENDALE KENNETH WAYNE ET AL) 24 September 2002
(2002-09-24)

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1 INDEPENDENT CLAIMS 1 AND 13

- 1.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 13, and shows (the references in parentheses applying to this document):

A wireless information device (fig. 1, ref. 10; col. 3, lines 33-38) programmed to automatically modify its behaviour (col. 4, line 65 to col. 5, line 3), the device enabling: an end-user to enter time-sensitive information (col. 5, lines 55-61) into a first application (calendar : fig. 3, ref. 48) running on the device, a second application running on the device to receive data relating to the time-sensitive information from the first application, and the second application then automatically changing the behaviour of the device appropriately in dependence on the data (col. 7, lines 8-33).

The difference between D1 and the subject-matter of claim 13 is the intermediary server enabling the first application to send data indirectly to the second application.

The subject-matter of claim 13 is therefore new (Article 33(2) PCT).

- 1.2 The problem to be solved by the present invention may be regarded as how to enable a plurality of first applications to send data to any number of second applications that are to respond to the time-sensitive information.

The solution to this problem proposed in claim 13 of the present application is

considered as involving an inventive step (Article 33(3) PCT) for the following reason:

providing an intermediary server enabling the first application to send data indirectly to the second application is neither suggested nor rendered obvious by the available prior art.

- 1.3 Similar reasoning can be applied to corresponding independent method claim 1. The subject-matter of said claim is therefore also new and inventive.

2 DEPENDENT CLAIMS

Claims 2-12 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Re Item VII

Certain defects in the international application

- 1 Independent claims 1 and 13 are not in the two-part form in accordance with Rule 6.3(b) PCT.
- 2 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.
- 3 Some of the features in the device claim 13 relate to a method (i.e. functions or method steps) of using the device rather than clearly defining the device in terms of its technical features.

In particular, verbal forms such as :

- the device enabling ...
- the second application changing the behaviour ...
- the first application sends ...

do not clearly correspond to features of a device.

The intended limitations are therefore not clear from this claim, contrary to the re-

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quirements of Article 6 PCT.

SUMMARY OF THE PRESENT INVENTION

In a first aspect, there is a method of enabling a wireless information device to automatically modify its behaviour, comprising the steps of:

5 (a) an end-user entering time sensitive information into a first application running on the device;

 (b) a second application running on the device receiving data from the first application, the data relating to the time sensitive information, and the second application then automatically changing the behaviour of the device appropriately in
10 dependence on the data;

 in which the first application sends the data indirectly to the second application via an intermediary server.

Hence, the present invention deals with the very specific situation of an end-user
15 entering time sensitive information into an application; this, for example, may be an entry (e.g. 'meeting', 'lunch with Bob', 'travelling', 'flying' etc) against specific times in an agenda or calendar application. Then, a different application on the device can utilise that information to modify the device behaviour appropriately. For example, say the 'meeting' in the calendar application is listed to last between 10am and 11am; then,
20 during that hour, the telephone application in the device (that enables the telephone functions of the device to be controlled) could automatically be set to a suitable profile, such as a 'silent' profile so that the device does not ring on an incoming call, but instead only vibrates. The term 'application' should be expansively construed to cover any structure of software that performs one or more functions; it hence covers
25 elements/portions of an operating system, utilities, client components, server components etc. Particularly, the second application could be OS system services, as opposed to an application which presents a unique interface to an end-user.

The first application sends the data indirectly to the second application via an
30 intermediary server. The term 'server' is used in its normal, broad sense to mean a computer program that provides services to other computer programs. The server operates as an insulation layer, separating the first and second applications (the term 'insulation layer' is a term of art in design patterns). It allows there to be one or several

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first applications (i.e. applications into which the user can input time sensitive information – such as (a) an agenda application into which the end-user can enter appointments, meetings, events etc. occurring at different defined times and (b) an alarm application into which the end-user can input a time he would like the device to sound an alarm). Further, the server enables any of these first applications to send data to any number of other applications that are to respond to the time sensitive information (or more specifically the data sent from the first application(s) that relate to this time sensitive information). Hence, a device might be in sleep mode, but the power management application be set to awake to normal mode when the alarm sounds: in this case, the first application is the alarm application and the second application is the power management application. The server can also ensure that the second application is running and to launch it if necessary.

The approach of the present invention therefore provides a structured and systematic way for a device to intelligently use time sensitive information that the end-user has manually input.

The end-user could, in relation to the agenda application entry (e.g. 'meeting between 10am and 11am) select from a menu list (i.e. any kind of user interface that enables the end-user to select different options) a label to apply to the entry, the label defining the type of behaviour change to be carried out by the second application. Hence, in relation to the 'meeting', 'lunch', 'travelling' or 'flying' etc. entries, the end-user could activate a pop-up menu of possible behaviour changes linked to that event. These might include the following selectable options:

- (a) altering a telephone profile (e.g. silent, vibrate, loud, divert to voice mail etc.)
- (b) altering the device ring tone
- (c) altering the device user interface
- (d) switching off telephone functionality
- (e) switching off the device entirely
- (f) switching the device to a power save mode

- (g) switching off one or more items of communications hardware (e.g. GPS, IR, Bluetooth, wireless LAN modules).

Generally , the second application automatically changes the behaviour of the device appropriately in dependence on the data from the first application for a time period determined by that data, e.g. silent mode for 1 hour to coincide with the meeting duration.

Another example is that there could be a dialog near the weekdays dialog in the agenda application with pairs of times the end-user enters to put the phone into power save mode, weekday sleep times, Saturday sleep times, Sunday sleep times etc.

If a conflict arises between the behaviour change due to the data from the first application and a different behaviour change input directly by the end-user to the first or the second application, then the different behaviour change may prevail – different types of changes may be allocated different priorities. Hence, the end-user could place the device directly back into sleep mode as or shortly after the alarm is sounding, to continue with the example above.

In one implementation, dynamically ensuring event-precedence is deterministic - meaning all events must guarantee to resolve to correct behaviour. So if one event has higher priority than another, this must be true under all circumstances ('if and only if'), and if two events have the same priority they must resolve to the same result each time.

If a conflict arises between the behaviour change due to the data from the first application and a different behaviour change input directly to the first or the second application, then a conflict resolution component determines which behaviour change prevails. A component designed to resolve conflicts can have a pre-defined list of conflict situations and the appropriate conflict resolution decision it should make given those inputs. The pre-defined conflict list may contains derivation rules, i.e. allow algebraic substitution rather than a static scenario and are thus are dynamic and will not cause compatibility problems; this facilitates third parties subscribing and publishing with the system.

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An override component could also be provided to determine if a behaviour change due to the data from the first application is inappropriate and to then override that behaviour change. Hence, a device may be automatically about to wake up from sleep mode and sound the alarm as described above; but the device may also have a location sensor that
5 informs it that it is in an aircraft and hence must not activate. In this circumstance, the wake up behaviour change would be over-ridden. The intermediary server could provide the conflict resolution component and override component.

In addition, it is possible for the end-user to enter time sensitive information into the
10 first application running on the device; and for a second application running on a second, different device to receive data directly or indirectly from the first application, the data relating to the time sensitive information, and the second application then automatically changing the behaviour of the second device appropriately in dependence on the data. In this way, for example, an alarm notification set into one device could be used to trigger
15 an action within or by an application running on a completely different device; the two devices might be connected over a wireless link. Hence, it could trigger a web camera to activate and send images to a web site.

In a second aspect, there is a wireless information device programmed to automatically
20 modify its behaviour, the device enabling:

- (a) an end-user to enter time sensitive information into a first application running on the device;
 - (b) a second application running on the device to receive data directly or indirectly from the first application, the data relating to the time sensitive information,
25 and the second application then automatically changing the behaviour of the device appropriately in dependence on the data;
- in which the first application sends the data indirectly to the second application via an intermediary server.

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CLAIMS

1. A method of enabling a wireless information device to automatically modify its behaviour, comprising the steps of:
- 5 (a) an end-user entering time sensitive information into a first application running on the device;
- (b) a second application running on the device receiving data from the first application, the data relating to the time sensitive information, and the second application then automatically changing the behaviour of the device appropriately in
- 10 dependence on the data;
- in which the first application sends the data indirectly to the second application via an intermediary server.
2. The method of Claim 1 in which the first application is a calendar or agenda
- 15 application and the time sensitive information is an entry into the calendar or agenda application.
3. The method of Claim 2 in which the end-user selects from a menu list a label to apply to the entry, the label defining the type of behaviour change to be carried out by
- 20 the second application.
4. The method of Claim 1 in which the first application is an alarm application and the time sensitive information is defining an alarm time.
- 25 5. The method of any preceding claim in which the second application is a telephone application that enables telephone functions of the device to be controlled.
6. The method of any preceding Claim in which the step of changing the behaviour is one of the following:
- 30 (a) altering a telephone profile
- (b) altering the device ring tone
- (c) altering the device user interface
- (d) switching off telephone functionality

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- (e) switching off the device entirely
- (f) switching the device to a power save mode
- (g) switching off one or more items of communications hardware.

- 5 7. The method of any preceding Claim in which, if a conflict arises between the behaviour change due to the data from the first application and a different behaviour change input directly to the first or the second application, then the different behaviour change prevails.
- 10 8. The method of any preceding Claim in which if a conflict arises between the behaviour change due to the data from the first application and a different behaviour change input directly to the first or the second application, then a conflict resolution component determines which behaviour change prevails.
- 15 9. The method of any preceding Claim in which an override component determines if a behaviour change due to the data from the first application is inappropriate and then overrides that behaviour change.
10. The method of Claim 8 in which the conflict resolution component is the server.
- 20 11. The method of Claim 9 in which the override component is the server.
12. The method of any preceding Claim in which the second application automatically changes the behaviour of the device appropriately in dependence on the data from the first application for a time period determined by that data.
- 25 13. A wireless information device programmed to automatically modify its behaviour, the device enabling:
- 30 (a) an end-user to enter time sensitive information into a first application running on the device;
 - (b) a second application running on the device to receive data from the first application, the data relating to the time sensitive information, and the second

application then automatically changing the behaviour of the device appropriately in dependence on the data;

in which the first application sends the data indirectly to the second application via an intermediary server.

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